In the Claims:

All currently allowed claims are presented herein.

Claims 1-22 (Cancelled)

23. (Allowed): A method for removing endotoxin from a plasmid DNA solution comprising:

a) filtering a solution comprising plasmid DNA through a series of filters including a glass fiber filter and a nylon filter;

b) contacting the solution comprising plasmid DNA with a trimethylamino ethyl (TMAE) anion exchange chromatography resin, the solution having a conductivity at which the plasmid DNA is bound to the resin; washing the resin to elute endotoxin; and eluting the plasmid DNA with a step or continuous gradient of increasing conductivity.

24. (Allowed): The method of claim 23, wherein the TMAE anion exchange chromatography resin comprises a methacrylate based copolymer having a tentacle linked TMAE functional group.

25. (Allowed): The method of claim 23, wherein the plasmid DNA solution is loaded on the resin in a solution having a conductivity of less than about 50 mS/cm.

26. (Allowed): The method of claim 25, wherein the plasmid DNA is step eluted with a series of buffers of increasing conductivity in a range of from about 50 to about 90 mS/cm.

27. (Cancelled)

28. (Allowed): The method of claim 23, where the plasmid DNA solution is filtered through the series of filters prior to contacting the plasmid DNA solution with the anion exchange chromatography resin.

29. (Allowed): The method of claim 23, wherein the plasmid DNA solution is a clarified lysate obtained after alkaline lysis of bacterial cells comprising the plasmid DNA and removal of precipitated proteins, chromosomal DNA cell debris.

30. (Allowed): The method of claim 29, wherein the clarified lysate is further neutralized to a pH of about 7 to about 8.5.

31. (Allowed): The method of claim 30, wherein the clarified lysate is further neutralized with a buffer that decreases an ionic strength of the lysate for direct loading onto the anion exchange resin.

32. (Allowed): The method of claim 30, wherein the lysate is neutralized with a buffer that comprises Tris base.

33. (Allowed): A method for removal of endotoxin from a plasmid DNA solution comprising:

a) filtering the plasmid DNA solution through a series of filters comprising a glass fiber filter and a nylon filter;

b) loading the filtered plasmid DNA solution onto a column comprising trimethylamino ethyl (TMAE) anion exchange resin, wherein the plasmid DNA solution is loaded onto the column in a loading buffer having a conductivity below which the plasmid DNA would elute from the resin; washing the column with a buffer having a conductivity sufficient to elute endotoxin but not plasmid DNA from the resin; and eluting the plasmid DNA with a step or continuous gradient of increasing conductivity, thereby producing a solution of anion exchange purified plasmid DNA.

c) filtering the solution of anion exchange purified plasmid DNA through a further series of filters comprising a glass fiber filter and a nylon filter to remove residual endotoxins.

34. (Allowed): The method of claim 33, wherein the plasmid DNA solution comprises clarified lysate obtained following alkaline lysis and precipitation using continuous flow static mixers.

35. (Allowed): The method of claim 34, wherein the clarified lysate is neutralized to a pH of about 7 to 8.5 prior to anion exchange chromatography.

36. (Allowed): The method of claim 35, wherein the clarified lysate is neutralized with a buffer that descreases an ionic strength of the lysate for direct loading onto the anion exchange resin.

37. (Allowed): A pharmaceutical scale method for purifying plasmid DNA comprising:

a) mixing a solution of bacterial cells comprising the plasmid DNA with an alkaline lysis solution by flowing through a first static mixer to obtain lysate;

b) contacting the lysate with a potassium acetate precipitation solution by flowing through a second static mixer, thereby forming a precipitation mixture;

c) removing a precipitate from the precipitation mixture thereby forming a clarified lysate;

d) filtering the clarified lysate through a series of filters comprising a glass filter and a nylon filter thereby forming a filtered lysate;

e) loading the filtered lysate onto a trimethylamino ethyl (TMAE) anion ion exchange chromatography resin under conditions wherein the plasmid DNA is retained on the resin, washing the resin with a buffer that removes weakly bound impurities from the resin, and eluting the plasmid DNA with a step or continuous saline gradient, thereby producing a solution of anion exchange purified plasmid DNA; and

f) filtering the solution of anion exchange purified plasmid DNA through a further series of filters comprising at least one glass filter and at least one nylon filter to further remove residual endotoxins.

38. (Allowed): The method of claim 37, further comprising a step of RNase digestion.

39. (Allowed): The method of claim 37, further comprising a step of adjusting the pH and conductivity of either the precipitation mixture or the clarified lysate to a pH in the range of about 7 to about 8.5 and a conductivity of less than about 50mS/cm prior to the filtering step wherein the filtered lysate can be directly loaded onto the anion ion exchange chromatography resin.

40. (Allowed): The method of claim 37, wherein the trimethylamino ethyl (TMAE) anion ion exchange resin comprises a methacrylate based copolymer having a tentacle linked TMAE functional group.

41. (Allowed): The method of claim 37, further comprising the step of purifying the plasmid DNA solution using ultrafiltration in the presence of a gel layer that is allowed to form before starting ultrafiltration.

42. (Allowed): The method of claim 41, wherein the ultrafiltration unit is an open channel tangential flow ultrafiltration unit.

43. (Allowed): A method for purifying plasmid DNA comprising:

a) lysing the bacterial cells by alkaline lysis and precipitation through a series of continuous flow static mixers to provide a lysate;

b) clarifying the lysate and adjusting the pH and conductivity of the lysate to a pH of about 7.0 to about 8.5 and a conductivity of less than about 50mS/cm;

c) filtering the clarified and adjusted lysate through a filter series comprising a glass filter and a nylon filter to provide a filtered lysate;

d) purifying the filtered lysate by anion exchange chromatography using a methacrylate based copolymer resin having a tentacle linked TMAE functional group to provide a purified plasmid DNA solution;

e) filtering the purified plasmid DNA solution through a further filter series comprising a glass filter and a nylon filter to reduce endotoxin levels; and

f) optionally, ultrafiltering and diafiltering the anion exchange purified plasmid DNA through a tangential flow open channel device in the presence of a gel-layer that is formed by an initial period of recirculation.

44. (Allowed): The method of claim 23, wherein the nylon filter is a N66 nylon filter.

45. (Allowed): The method of claim 33, wherein the nylon filter is a N66 nylon filter.

46. (Allowed): The method of claim 37, wherein the nylon filter is a N66 nylon filter.

47. (Allowed): The method of claim 43, wherein the nylon filter is a N66 nylon filter.